



29 November 2011

Future Fisheries
Montana Fish, Wildlife & Parks
P.O. Box 200701
Helena, Montana 59620-0701

Dear Future Fisheries,

Please find enclosed our proposal entitled *South Fork of the North Fork Divide Creek Westslope Cutthroat Trout Enhancement* as application for funding through the Montana Fish, Wildlife & Parks Future Fisheries Program. We are very excited at the opportunity to submit this proposal.

We are respectfully seeking \$2,000 from your organization to support this westslope cutthroat trout enhancement project. This project will substantially protect their range and contribute to the long-term persistence of westslope cutthroat trout in the Big Hole River watershed.

Thank you for your time and consideration.

Respectfully,

Michael A. Bias, Ph.D.
Executive Director

Enclosure.

**FUTURE FISHERIES IMPROVEMENT PROGRAM
GRANT APPLICATION**

(please fill in the highlighted areas)

I. APPLICANT INFORMATION

- A. Applicant Name: Big Hole River Foundation
- B. Mailing Address: PO Box 3894
- C. City: Butte State: MT Zip: 59702
- Telephone: 866-533-2473
- D. Contact Person: Michael A. Bias, Ph.D., Executive Director
- Address if different from Applicant:
- City: State: Zip:
- Telephone: 406-684-5564 (office); 406-925-2276 (cell)
- E. Landowner and/or Lessee Name
(if other than Applicant): Butte Silver Bow County
- Mailing Address:
- City: State: Zip:
- Telephone:

II. PROJECT INFORMATION*

- A. Project Name: South Fork of the North Fork Divide Creek Westslope Cutthroat Trout Enhancement
- River, stream, or lake: South Fork of the North Fork Divide Creek, Silver Bow County, MT
- Location: Township 1 N Range 9 W Section 8 NW 1/4
- County: Silver Bow
- B. Purpose of Project:
- This project will remove a perched culvert that is acting as a fish passage barrier to native westslope cutthroat trout in the South Fork of the North Fork Divide Creek, an important tributary to the Big Hole River. Removal of this perched culvert will allow migration and spawning of westslope cutthroat trout upstream of the barrier.
- C. Brief Project Description:

This proposed project will be a cooperative effort among Montana Fish Wildlife and Parks, the Butte Municipal Water District, and the Big Hole River Foundation. The project is being proposed as part of the Big Hole River Foundation's *Westslope Cutthroat Trout Restoration Program*. This project works well with the mission of the Big Hole River Foundation; *to conserve, enhance, and protect the free-flowing character of the Big Hole River, its unique culture, fish, and wildlife.*

The tributaries of Divide Creek -- North Fork, South Fork, and South Fork of the North Fork -- are home to conservation populations of native westslope cutthroat trout. Divide Creek is an important tributary to the Big Hole River at Divide, Montana. Westslope cutthroat are a *Species of Special Concern* in Montana and are considered a *Sensitive Species* by the Forest Service. The South Fork of the North Fork is the only tributary in the Divide Creek system that harbors non-hybridized westslope cutthroat. The South Fork harbors both non-hybridized and slightly hybridized fish. Both populations are threatened by over abundant brook trout populations. The North Fork of Divide Creek had a native cutthroat population when last sampled in 1996, but that population has since been extirpated due to competition from brook trout. Currently, the North Fork Divide Creek has a westslope cutthroat trout restoration project underway.

To enhance existing westslope cutthroat trout populations in South Fork of the North Fork Divide Creek a perched culvert at the inlet to South Fork Reservoir will be removed and a more natural fish passage way using rock will be constructed (Figure 1). Removal of this perched culvert will allow migration and spawning of westslope cutthroat trout from the reservoir upstream perched culvert (Figures 2 and 3).

The project will occur on lands managed by the Butte Municipal Water District. The Butte Municipal Water District uses the South Fork of the North Fork Divide Creek for a portion of the water supply for the city of Butte. The South Fork of the North Fork Divide Creek enters the 0.6-acre settling basin through a water control structure that does not impede fish passage. The perched culvert from the settling pond flows into the 4.1-acre South Fork Reservoir. Besides the outlet to the South Fork Reservoir, a natural waterfall exists below the reservoir that acts as a natural fish barrier in the system; as such, no fish passage can occur above this waterfall.

A local contractor familiar with constructing natural fish passage ways has aided in the design and will assist with the construction of the fish passage way. The perched culvert is about 6 feet above the South Fork Reservoir and about 24- to 30-feet long. We will construct a step-pool design to accommodate 1-ft drops (6 in total) with 3-5 ft long pools with a residual pool depth of 1-ft each. Rock weirs will be "U" shaped with the apex of the U pointing upstream. Channel width will be at least 6 feet (Figure 4a-c). Locally-acquired rock will be used to construct the fish passage way. The advantage of using natural materials and only excavation is that the fish passage way will appear natural when complete and is less expensive than constructing a concrete fish ladder. Local rock will be provided onsite and construction aided by the Butte Municipal Water District.

Following construction, monitoring the South Fork of the North Fork Divide Creek will be conducted using other funds and performed through a partnership with the US Forest Service and Montana Fish Wildlife and Parks personnel. For this project staff from the Big Hole River Foundation will participate in monitoring efforts. The monitoring plan for the proposed fish passage way consists of capturing fish upstream of the new structure, marking those fish and releasing them into South Fork Reservoir. If marked fish are found subsequently upstream of the new fish passage way, then fish passage is successful. If no fish are found above the new fish passage way, then the fish passage way will be modified to allow passage. The fish passage way will be monitored for structural integrity and any failures or unexpected changes will be evaluated and repaired. After brook trout are removed from the system, the fishery will be evaluated every 5-10 years.

D. Length of stream or size of lake that will be treated:

The South Fork of the North Fork Divide Creek is over 5 miles long.

E. Project Budget:

Grant Request (Dollars): \$ **2,000**

Contribution by Applicant (Dollars): \$ 4,500 In-kind \$ 2,500
(salaries of government employees are not considered as matching contributions)

Contribution from other Sources (Dollars): \$ 21,400 In-kind \$ 19,400
(attach verification - See page 2 budget template)

Total Project Cost: \$ **23,400**

F. Attach itemized (line item) budget – see template

G. Attach specific project plans, detailed sketches, plan views, photographs, maps, evidence of landowner consent, evidence of public support, and/or other information necessary to evaluate the merits of the project. If project involves water leasing or water salvage complete supplemental questionnaire (fwp.mt.gov/habitat/futurefisheries/supplement2.doc).

H. Attach land management and maintenance plans that will ensure protection of the reclaimed area.

III. PROJECT BENEFITS*

A. What species of fish will benefit from this project?:

Westslope cutthroat trout

B. How will the project protect or enhance wild fish habitat?:

This project will enhance westslope cutthroat trout habitat by removing a barrier between rearing and spawning habitat. Connectivity between spawning and rearing habitat types is essential in riverine systems. Mature westslope cutthroat trout entrained in South Fork Reservoir are unable to access spawning habitats after passing through the perched culvert. After the perched culvert is replaced with a more natural fish passage way, larger spawning age westslope cutthroat trout rearing in South Fork Reservoir will have access to spawning habitats upstream of the former barrier.

C. Will the project improve fish populations and/or fishing? To what extent?:

We anticipate that westslope cutthroat trout populations in the South Fork of the North Fork Divide Creek will improve when the perched culvert is replaced by a natural fish passage way. The project will allow mature larger spawning age westslope cutthroat trout access to spawning habitats they otherwise could not because of the perched culvert. Larger more-mature trout produce more eggs and spawn with greater success than smaller fish. Therefore, the westslope cutthroat trout population within the South Fork of the North Fork Divide Creek should improve.

D. Will the project increase public fishing opportunity for wild fish and, if so, how?:

Because the land surrounding the project site is owned by the Butte Municipal Water District, fishing is not allowed. However, much of the South Fork of the North Fork Divide Creek upstream of the project site occurs on public land. With this project increasing connectivity by removing fish a barrier and improving westslope populations, improved fishing opportunities should exist upstream of the project site.

E. If the project requires maintenance, what is your time commitment to this project?:

The project will occur on lands owned and managed by the Butte Municipal Water District. Butte Municipal Water District is also a contributing partner on this project. Without their cooperation, support, and initiation; this project would not happen. They are committed to the success, care, and maintenance of this project to promote the conservation of westslope cutthroat trout. Further, because this project is an integral component of the water supply system for the City of Butte, project maintenance is assured. The Big Hole River Foundation is committed to the maintenance of this project as far as the Butte Municipal Water District needs our assistance.

F. What was the cause of habitat degradation in the area of this project and how will the project correct the cause?:

The South Fork of the North Fork Divide Creek was historically diverted into a 0.6-acre settling pond and then into the South Fork Reservoir where the City of Butte obtains a portion of its water supply. The settling basin was used to remove suspended solids from the water before entering the South Fork Reservoir through an elaborate water distribution system and the perched culvert. With the construction of the Butte Water Treatment Plant, the settling basin became obsolete as well as the perched culvert. Removing the perched culvert will reconnect the South Fork Reservoir with the headwaters of the South Fork of the North Fork Divide Creek.

G. What public benefits will be realized from this project?:

The greatest public benefit of this project is the long-term conservation of native westslope cutthroat trout. Because the South Fork of the North Fork Divide Creek is one of only a few non-hybridized populations of westslope cutthroat trout in the Big Hole watershed, this project will substantially protect their range and contribute to their long-term persistence.

H. Will the project interfere with water or property rights of adjacent landowners? (explain):

No.

I. Will the project result in the development of commercial recreational use on the site?: (explain):

No.

J. Is this project associated with the reclamation of past mining activity?:

No.

Each approved project sponsor must enter into a written agreement with the Department specifying terms and duration of the project.

IV. AUTHORIZING STATEMENT

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature:

Date:

Sponsor (if applicable):



***Highlighted boxes will automatically expand.**

Mail To: Montana Fish, Wildlife & Parks
Habitat Protection Bureau
PO Box 200701
Helena, MT 59620-0701

Incomplete or late applications will be returned to applicant.

Applications may be rejected if this form is modified.

*****Applications may be submitted at anytime, but must be received by the Future Fisheries Program office in Helena before December 1 and June 1 of each year to be considered for the subsequent funding period.*****

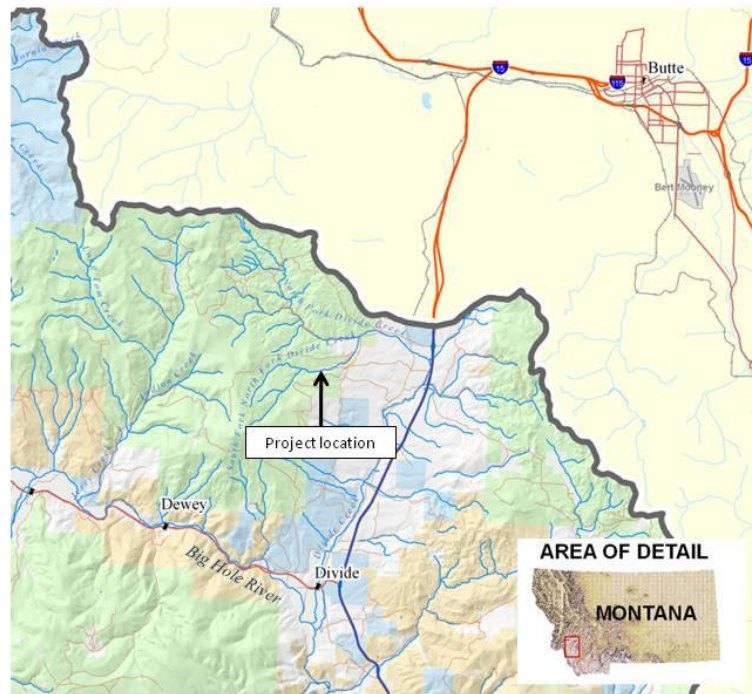


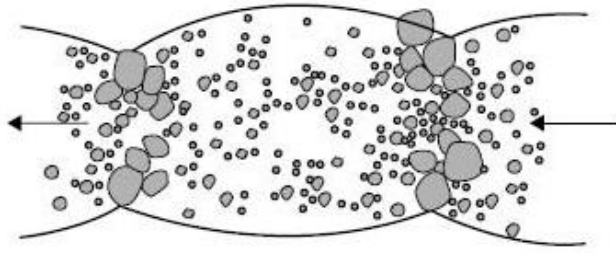
Figure 1. Location of the perched culvert on the South Fork of the North Fork Divide Creek, an important tributary to the Big Hole River, Silver Bow County, Montana.



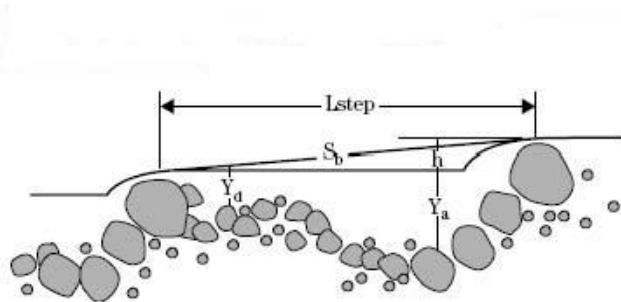
Figure 2. Removal of this perched culvert will allow migration and spawning of westslope cutthroat trout upstream of the barrier. The project is located on the South Fork of the North Fork Divide Creek, Silver Bow County, Montana.



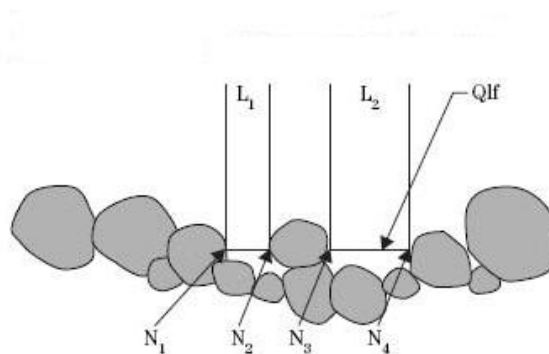
Figure 3. Headgate of perched culvert on South Fork of the North Fork Divide Creek, Silver Bow County, Montana.



a) Plan view



b) Profile view



c) Cross section view

Figure 4. Plan (a), profile (b), and cross sectional (c) drawings of pool and weir sections of natural rock fish passage way to be constructed in place of the perched culvert on the South Fork of the North Fork Divide Creek, Silver Bow County, Montana. We will construct a step-pool design to accommodate 1-ft drops (6 in total) with 3- to 5-ft long pools with a residual pool depth of 1-ft each. Rock weirs will be "U" shaped with the apex of the U pointing upstream. Channel width will be at least 6 feet.

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS
(Revised 11/29/2011)

WORK ITEMS (ITEMIZE BY CATEGORY)	NUMBER OF UNITS	UNIT DESCRIPTION *	COST/UNIT	TOTAL COST	CONTRIBUTIONS			
					FUTURE FISHERIES REQUEST	IN-KIND SERVICES	IN-KIND CASH	TOTAL
<u>Personnel</u>								
FWP genetic samples				\$ 900.00		900.00		\$ 900.00
FWP fish removal	10	4-person crew	\$720.00	\$ 7,200.00		7,200.00		\$ 7,200.00
FWP evaluation	2	4-person crew	\$720.00	\$ 2,900.00		2,900.00		\$ 2,900.00
BHRF staff	80	hours	\$31.25	\$ 2,500.00		2,500.00		\$ 2,500.00
Butte Water staff				\$ 1,000.00		1,000.00		\$ 1,000.00
US Forest Service	12	1-person crew	\$200.00	\$ 2,400.00		2,400.00		\$ 2,400.00
				\$ -				\$ -
<u>Service Contracts</u>								
Contract	1	lump sum	\$4,000.00	\$ 4,000.00	2,000.00		2,000.00	\$ 4,000.00
Mileage				\$ -				\$ -
Per diem				\$ -				\$ -
<u>Construction Materials</u>								
Rock (on-site)	1	lump sum	\$1,500.00	\$ 1,500.00			1,500.00	\$ 1,500.00
				\$ -				\$ -
<u>Equipment</u>								
Excavator				\$ 500.00		500.00		\$ 500.00
Dump truck				\$ 500.00		500.00		\$ 500.00
				\$ -				\$ -
<u>Mobilization</u>								
				\$ -				\$ -
TOTALS				\$ 23,400.00	\$ 2,000.00	\$ 17,900.00	\$ 3,500.00	\$ 23,400.00

*Units = feet, hours, inches, lump sum, etc.

MATCHING CONTRIBUTIONS

CONTRIBUTOR	IN-KIND SERVICE	IN-KIND CASH	TOTAL
Big Hole River Foundation	\$ 2,500.00	\$ 2,000.00	\$ 4,500.00
Butte Municipal Water District (staff, materials, and construction)	\$ 3,500.00	\$ -	\$ 3,500.00
FWP: genetic samples, fish removal, and evaluation	\$ 11,000.00	\$ -	\$ 11,000.00
US Forest Service, fish removal & evaluation (1 person, 12 days)	\$ 2,400.00		\$ 2,400.00
	\$ -	\$ -	\$ -
TOTAL	\$ 19,400.00	\$ 2,000.00	\$ 21,400.00